SCIENCE

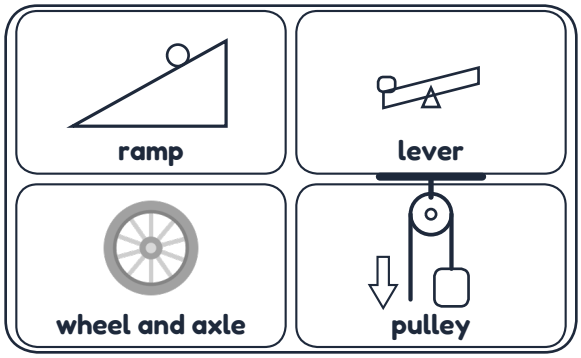
Simple machines

Name _____ Date _____

I can name simple machines and tell how they make work easier.

1 How it works

Simple machines help us push and pull with less effort. A ramp lets you roll a heavy load up instead of lifting it. A lever is a bar that tips on a point, like a seesaw. A wheel and axle roll things along, like a wagon. A pulley is a wheel with a rope that lets you pull down to lift something up, like a flag.



2 Name the simple machine

Use the words in the box.

ramp **lever** **wheel and axle** **pulley**



seesaw
Tips up and down on a point.

_____



hammer
Its claw pulls out a nail.

_____



flagpole
Pull down to raise the flag.

_____



cart
It rolls a heavy load.

_____



slide
Slide down a slope.

_____



bike
Its wheels turn on axles.

_____

How did I do? ☆ ☆ ☆

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Machines make work easier

Name _____ Date _____

I can choose a simple machine for a job.

1 Which machine would help? Draw a line.

 **ramp** ○	○ roll a heavy box up into a truck
 **lever** ○	○ lift a bucket out of a well
 **wheel and axle** ○	○ lift a big rock with a long bar
 **pulley** ○	○ move a load in a wagon

2 Which is easier? Circle it.

1.	lift a box straight up	roll it up a ramp
2.	pull 10 books in a wagon	carry them in your arms
3.	lift the rock with your hands	lift it with a long bar
4.	raise the flag with a pulley	climb the pole to hang it

How did I do? ☆ ☆ ☆

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Think like a scientist

Name _____ Date _____

I can explain how simple machines make work easier.

1 Think about it

1. Why is a ramp easier than lifting? _____
2. Where have you seen a lever? _____
3. How does a wagon help? _____
4. Which machine raises a flag? _____

2 True or false? Circle it.

1. A pulley can help lift a flag.	**true**	**false**
2. Simple machines make work harder.	**true**	**false**
3. A ramp is a simple machine.	**true**	**false**
4. A wheel and axle cannot roll.	**true**	**false**
5. A seesaw is a kind of lever.	**true**	**false**

3 Invent a machine to clean your room. Label its simple machines.

How did I do? ☆ ☆ ☆

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Try it: ramp or lift?

Name _____ Date _____

I can test how a ramp makes work easier.

1 You need

- a toy car with a few blocks on it
- a rubber band
- a board for a ramp
- a ruler
- tape

2 What to do

1. Hook the rubber band to the car. Lift the car straight up by the band. Measure how long the band stretches.
2. Make a ramp with the board and some books.
3. Pull the car up the ramp with the rubber band. Measure the stretch again.
4. Compare: when did the band stretch less?

3 I predict

Will lifting or using the ramp stretch the band more?

_____

_____

4 What I see

Way	Band stretch	Easier or harder?
lift up		
up the ramp		

How did I do? ☆ ☆ ☆

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FOR TEACHERS AND PARENTS

Answer key: simple machines

1 Page 1

Answers: 1) seesaw: lever; 2) hammer: lever; 3) flagpole: pulley; 4) cart: wheel and axle; 5) slide: ramp; 6) bike: wheel and axle.

2 Page 2

Machines: 1) ramp: roll a heavy box up into a truck; 2) lever: lift a big rock with a long bar; 3) wheel and axle: move a load in a wagon; 4) pulley: lift a bucket out of a well.

Easier: 1) roll it up a ramp; 2) pull 10 books in a wagon; 3) lift it with a long bar; 4) raise the flag with a pulley.

3 Page 3

Think: 1) You push a little at a time over a longer path; 2) A seesaw, a hammer or a bottle opener; 3) Its wheels and axles roll the load; 4) A pulley.

True or false: 1) true; 2) false; 3) true; 4) false; 5) true.

Drawing: answers will vary. Look for ramps, levers, wheels or pulleys, each labeled.

4 Page 4: Try it!

The band stretches more when you lift the car straight up, because you need a bigger pull. On the ramp the band stretches less: you pull with less force, but over a longer distance. That is how a ramp makes work easier.

5 Teaching tip

Go on a simple machine hunt around the school: a door handle, a ramp at the entrance, wheels on carts and the flagpole pulley. Children love spotting them.

Safety: stretch the rubber band gently and keep it away from faces.

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